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## SCIENCE AND CONSCIENCE IN HUXLEY'S *BRAVE NEW WORLD*

*Peter Firchow*

Science was in the Huxley blood, or, if one wishes to be less Lamarckian and more Lockean about it, in the Huxley air. Aldous Huxley certainly had it from infancy and so did many another offspring of Darwin's bulldog, his brother and half-brothers among them. Before his partial blindness made it an absolute impossibility, Huxley had prepared himself for a career in biology, and though he eventually became more than reconciled to being a litterateur, the old hankering after strange scientific gods—and devils—never left him. His essays bristle with scientific references and in a small but quite real way his two treatises on the effects of psychedelic drugs, *The Doors of Perception* and *Heaven and Hell*, along with the brief account of his experience of the Bates eye treatment, *The Art of Seeing*, constitute scientific work. And, of course, his novels and stories frequently seek to portray the scientific mind, though rarely with the sympathy of the essays. One recalls in particular the experimental biologists: Shearwater in *Antic Hay* and Lord Tantamount in *Point Counter Point*; the physicists: Einstein in *Ape and Essence* and Henry Maartens in *The Genius and the Goddess*; and the doctors: Miller in *Eyeless in Gaza*, Obispo in *After Many a Summer*, and McPhail in *Island*.

Huxley's most powerful rendering of the effects of science and technology, however, is unquestionably *Brave New World*. So deep a mark has this work left on the modern literate mind that the mere mention of it evokes a whole complex of hostile attitudes towards science. It has become a kind of byword for a society in which the values (or nonvalues) of scientific technology are dominant, and which has therefore reduced man to a species of machine. Swift and Butler and Morris and Tolstoy had denounced the machine before, but it was

Huxley's ironic "Yes" that really began to awaken modern man to the horrible paradise of mechanical progress.

Like all successes, *Brave New World* has not lacked for literary foster fathers after the fact. At one time or another, all or part of the novel is alleged to have been derived (not to say plagiarized) from Shakespeare, Dostoevsky, Wells, Anatole France, Zamiatin, Joyce, or, in its scientific background, from J. B. S. Haldane and Bertrand Russell. While some of these claims are valid—especially, as we shall see, in the case of the scientists—it is important to remember that *Brave New World* is more than an inspired pastiche. It is obvious that in a satire of this kind, some of the victims will be literary and will therefore reappear in distorted form; whereas in the matter of the scientific background, it is just as obvious that this must be drawn from somewhere, that it cannot be simply pulled out of the thin air. Significantly, neither Haldane nor Russell (or for that matter Joyce or Wells) ever made even the slightest claim to having influenced the shape of *Brave New World*.

Some of Huxley's science has, in the natural course of events, dated rather badly since the novel was first published some forty-odd years ago. "One vast and obvious failure of foresight is immediately apparent," Huxley wrote in his 1946 foreword. "*Brave New World* contains no reference to nuclear fission."<sup>1</sup> The omission is actually, as he himself realized, rather surprising, since H. G. Wells had already described atomic bombs (using the very name) as early as 1914 in *The World Set Free*, on the basis of radium research carried out by Frederick Soddy. But is this really a "vast failure"? Is Huxley's friend and sometime advisor, Gerald Heard, justified in concluding that "like all such sketches [*Brave New World*] had become obsolete because of the growth and findings of subsequent research"?<sup>2</sup> Almost certainly not. Huxley's satire, unlike the scientific romances of H. G. Wells, does not depend chiefly on lucky "hits" or unlucky misses. His aim is not so much to foresee what will happen to machines as to foresee what will happen to man. While granting that the development of machines has an undeniable effect on the development of man—a major contention of *Brave New World*, anyway—it is still clear that mistakes in

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<sup>1</sup> Aldous Huxley, *Brave New World* (London: Chatto & Windus, 1960), p. x. All further page references will be to this edition and included parenthetically in the text. Where it has served to clarify the argument, I have inserted dates of first publication.

<sup>2</sup> Gerald Heard, "The Poignant Prophet," *Kenyon Review*, 27 (Winter 1965), 57.

detail about the former do not necessarily vitiate general conclusions about the latter.

In any case, in the primary areas of his scientific interest (biology, physiology, and psychology) Huxley has dated practically not at all. His return trips to the Fordian society in *Brave New World Revisited* and, less extendedly, in occasional letters and in essays like "Tomorrow and Tomorrow and Tomorrow," only confirmed him in his conclusions. Nor has subsequent research proven him wrong. On the contrary, Gordon Rattray Taylor warns in *The Biological Time-Bomb* (1969) that "*Brave New World* is on its way,"<sup>3</sup> and in *Man and His Future* (1963) J. B. S. Haldane still views Huxley's biological forecasts as a definite possibility.<sup>4</sup> Gerald Leach's conclusion in *The Biocrats* (1970) that Huxley's scientific prophecies are not likely to be fulfilled is reached not on scientific but on social grounds.<sup>5</sup> In fact, Huxley's main argument that man is genetically modifiable and psychologically conditionable has, if anything, gained in scientific authority. Experiments, such as those in the cloning of vegetable matter by F. C. Seward, have raised the real, though still distant, prospect of human reproduction along lines similar to the "Bokanovsky process." And, of course, the pharmacological revolution of the last two decades has begun to deliver the actual means for chemical control of human behavior.

Gerald Heard is wrong. *Brave New World* is still highly relevant to any discussion of what may happen to mankind in the next few centuries. It may, of course, cease to be relevant—and let us hope that it will—but if so, it will probably be for political reasons, as George Orwell suggested, rather than for scientific ones.

How did Huxley manage to formulate a blueprint for the future which has remained so astonishingly accurate over so long a period? This is a difficult question to answer, though any attempt at a satisfactory response would surely have to begin with H. G. Wells. Huxley undoubtedly had read some of Wells's scientific fantasies and even admitted that his original plan was to make *Brave New World* a parody of *Men Like Gods*.<sup>6</sup> That there are a considerable number of

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<sup>3</sup> G. R. Taylor, *The Biological Time-Bomb* (London: Panther Books, 1972), p. 43.

<sup>4</sup> J. B. S. Haldane, "Biological Possibilities for the Human Species in the Next Ten Thousand Years," in *Man and His Future*, ed. Gordon Wolstenholme (London: J. & A. Churchill, 1963), p. 340.

<sup>5</sup> Gerald Leach, *The Biocrats* (London: Jonathan Cape, 1970), p. 151.

<sup>6</sup> George Wickes and Ray Frazer, "Aldous Huxley," *Writers at Work*, 2nd series (London: Secker and Warburg, 1963), p. 165.

analogies in detail—Wells's crèches and Huxley's conditioning centers, Wells's genetic control and Huxley's hatcheries, Wells's islands for criminals and Huxley's for nonconformists—was suggested as long ago as 1937 by George Orwell<sup>7</sup> and has recently been demonstrated convincingly by Mark Hillegas in *The Future as Nightmare*.<sup>8</sup> But the existence of these detailed correspondences should not prevent one from seeing that Huxley is using Wells primarily for purposes which have little to do with technology. Moreover, many of the technological resemblances may be due less to Huxley's reading of Wells than to Huxley and Wells both drawing their information from the same scientific sources.

The search for these sources is rendered apparently easier but in reality more difficult by the fact that *Brave New World* already existed, as it were, in embryo as early as 1921. In Huxley's *Crome Yellow*, published in that year, Scogan—whom T. S. Eliot identified with Bertrand Russell—envisions a future when “an impersonal generation will take the place of Nature's hideous system. In vast state incubators, rows upon rows of gravid bottles will supply the world with the population it requires. The family system will disappear; society, sapped at its very base, will have to find new foundations; and Eros, beautifully and irresponsibly free, will flit like a gay butterfly from flower to flower through a sunlit world.”<sup>9</sup> Later on Scogan develops in even greater detail a “Rational State” which anticipates the systematic conditioning and caste separation of *Brave New World*.<sup>10</sup> Tempting as it is, it would be wrong, however, to jump to the conclusion that the latter novel is merely an amplification of the earlier. There are simply too many additions and shifts of emphasis—the Savage, Shakespeare, the Reservation, Ford and consumerism, for example—for that to be true. But there still remains enough connection, especially in the area of the scientific control of human physical and mental development, to give pause for thought.

Was Joseph Needham right in maintaining that Huxley borrowed heavily from Bertrand Russell's *The Scientific Outlook*, a judgment later echoed by H. V. Routh's *English Literature and Ideas in the Twentieth Century* (1946) and expanded by Philip Thody in his

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<sup>7</sup> George Orwell, *The Road to Wigan Pier* (London: Heinemann, 1965), pp. 200–02.

<sup>8</sup> Mark Hillegas, *The Future as Nightmare* (New York: Oxford Univ. Press, 1967), p. 112.

<sup>9</sup> Aldous Huxley, *Crome Yellow* (London: Chatto & Windus, 1922), p. 47.

<sup>10</sup> *Ibid.*, pp. 242ff.

recent study of Huxley to the point where “one wonders at times if Huxley put any original ideas into his book”?<sup>11</sup> Russell’s *Scientific Outlook* was first published in 1931. Is it true, as Ronald Clark suggests a good deal less polemically, that Huxley owes some sort of debt to J. B. S. Haldane’s *Daedalus or Science and the Future*?<sup>12</sup> Haldane’s book was first published in 1923. On the face of it and judging only by the dates of publication, it looks very much as if the situation were reversed, as if Russell and Haldane were the borrowers, not Huxley.

The dates, however, are deceptive, for Huxley had known both of these men years before he began to write *Crome Yellow*. He had met Russell frequently at Garsington in the late stages of the war, and he had actually lived in Haldane’s parental home, Cherwell, during his first year at Oxford. Until Huxley began inserting them into his books, not always in the most amiable way, Russell and Haldane probably considered him their friend. Just as important, both men were in close touch with Julian Huxley at a time when the latter was carrying out original research of his own in genetics. And Julian Huxley certainly needs to be considered an extremely important intermediary on scientific matters for his brother, and perhaps even an original source, despite his disclaimer in the *Memorial Volume* that his brother ever came to him “for help over the biological facts and ideas he utilized so brilliantly in *Brave New World* and elsewhere.”<sup>13</sup>

Russell seems in some respects the most logical possibility, especially if Eliot was right in identifying him with Scogan. Why choose Russell unless he was in some way associated with these ideas? And so he may have been, since Russell was a brilliant thinker and conversationalist on a wide variety of unconventional subjects. But no tangible proof exists, so far as I have been able to determine, showing that Russell was thinking specifically along Scogan’s lines before 1924. In that year he published *Icarus*, a reply to and, in some ways, a refutation of Haldane’s *Daedalus*. The priority here, however, belongs clearly to Haldane; it was he who had raised the issue and Russell who had chimed in. Russell’s interest in the subject is revealed by the fact that he *did* bother to write this kind of book, but that again is no proof of that interest predating *Crome Yellow*. Occasional resemblances—

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<sup>11</sup> Joseph Needham, “Biology and Mr Huxley,” *Scrutiny*, 1 (May 1932), 76; H. V. Routh, *English Literature and Ideas in the Twentieth Century* (London: Methuen, 1946), p. 182; Philip Thody, *Aldous Huxley* (London: Studio Vista, 1973), pp. 50–51.

<sup>12</sup> Ronald Clark, *JBS* (London: Hodder & Stoughton, 1968), p. 70.

<sup>13</sup> Julian Huxley, ed., *Aldous Huxley, 1894–1963* (London: Chatto & Windus, 1965), p. 22.

such as his preference for an unjust society with a “higher” purpose to a happy one without, as at the close of *Roads to Freedom* (1918)—are of so general a nature as hardly to matter.

With Haldane, the situation is rather different. Although *Daedalus* itself did not appear until after *Crome Yellow*, the substance of its argument goes back as far as 1912, when Haldane was still an undergraduate at Oxford and shortly before Huxley came to live at Cherwell. Nine years later, at just about the time Huxley was getting down to work on *Crome Yellow*, Haldane refurbished his essay and read it before the New College Essay Society.<sup>14</sup> Haldane’s friend and later collaborator, Julian Huxley, was also at Oxford at this time as a biology don and if not actually present at this meeting may be assumed to have heard about it from Haldane. The chances are extremely good that Aldous Huxley knew about the essentials of what was to become *Daedalus* by 1921 at the latest. That he did know the book in its finished form is absolutely certain from a reference to it in *Proper Studies*.<sup>15</sup> Interestingly enough, both of the relevant passages in *Proper Studies* and *Crome Yellow* mention a supposed “experiment” by Erasmus Darwin and Anna Seward (“The Swan of Lichfield”) in trying to grow a human embryo artificially. There is, perhaps understandably, no mention of such an experiment in any of the literature about either Darwin or Seward, and the story bears all the earmarks of a Haldane anecdote.

From Haldane Huxley seems to have borrowed several important features of his future state. There is, to begin with, an analogous emphasis on stability, with Haldane predicting that the important transition will be from the old stable agricultural society to the new industrial one. The people who first make that transition will, according to Haldane, inherit the earth. This is, of course, precisely what has happened in Huxley’s novel: the newest of stable industrial societies matched, in the Pueblo, by the oldest of stable agricultural ones. Second, Haldane discusses a historical instance of raising industrial productivity by chemical means and goes on to envision the development of a wide variety of new and pleasurable stimulants; this might have been the hint Huxley needed to produce the “warm liquor” of *Crome Yellow* which was eventually to ferment into *soma*.

But more important than either of these is the “Extracts from an Essay on the Influence of Biology on History during the Twentieth Century” written by an undergraduate 150 years in the future. Here

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<sup>14</sup> Clark, p. 70.

<sup>15</sup> Aldous Huxley, *Proper Studies* (London: Chatto & Windus, 1957), p. 277.

Haldane proposes the technique of reproduction which he calls "ectogenesis" but which has become popularly known as "test-tube babies." Significantly, the "Extracts" begins at precisely the point where *Brave New World* does: at the "hatchery"; and significantly Haldane goes on to predict that the "abolition of disease will make death a physiological event like sleep."<sup>16</sup> The outlines of the new world's birth and death control, it is evident, already exist in *Daedalus*.

Haldane may also have exercised a more indirect influence on *Brave New World*. In 1926 his wife Charlotte published an anti-utopian novel, *Man's World*, which in some ways is very much like Huxley's novel. (That Haldane is the source of the scientific background of his wife's story is certain, since her desire for his advice led to their first meeting.) In *Man's World* there is a kind of prototype of a World Controller, Mensch, who founds a world state by enlisting the impressionable young and by training them to take over command. In this new society, old age is abolished and each generation lives and dies together; there is a separate class of women who have been found eugenically fit to be mothers; and, most important of all, there are no more individuals. The plot of *Man's World* resembles that of Huxley's novel by tracing the increasingly conscious resistance of one man against the "happy" norm, a resistance which culminates, like the Savage's, in suicide. By an appropriate sequence of events, when *Brave New World* was published, Charlotte Haldane was selected to review it for *Nature*. Her verdict was that it was "a very great book," second only to *Antic Hay*, but she made no mention of its relation either to her own work or to that of her husband.<sup>17</sup>

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<sup>16</sup> J. B. S. Haldane, *Daedalus* (New York: Dutton, 1924), pp. 22, 34–37, 64, and 73. The first mention of ectogenesis as a possible method of human reproduction occurs in Denis Diderot's *Reve d'Alembert*, which Huxley may have known. See the edition by Paul Vernière (Paris: Marcel Didier, 1951), pp. lvii–lviii and pp. 52–54. There is also the further possibility that Huxley may have been indirectly influenced by H. J. Muller, the Nobel Prize winning geneticist who became a life-long friend of Julian Huxley's after assisting him at Rice in 1912. Muller's *Out of the Night* was not published until 1936, but in his preface Muller claims the book was essentially complete by 1910.

<sup>17</sup> Charlotte Haldane, "Dr Huxley and Mr Arnold," *Nature*, 129 (April 23, 1932), 598. Rather odd, after this fulsome praise is J. B. S. Haldane's claim in his draft autobiography that his wife "avenged Rosie [the unfaithful wife of Shearwater-Haldane in *Antic Hay*] by reviewing *Brave New World* in *Nature*." See Clark, p. 57. It is worth adding, however, that the concept of neotonous development which Huxley employs in *After Many a Summer* is anticipated by Haldane in *Science and Human Life* (New York: Harper, 1933), p. 33; and that the social changes pursuant to a human rut, later elaborated by Huxley in *Ape*



Both Russell's *Icarus* and *The Scientific Outlook* are links in the chain first forged by Haldane, but they also go well beyond their original. The choice of Icarus, for example, clearly suggests a rather less hearty confidence in the future of science than Haldane's Daedalus. Hence Russell's focus is, like Huxley's, more on the effects of scientific advances on man than on machinery. He foresees, among other possibilities, the development of advertising and propaganda as weapons to suppress freedom, as well as social destiny control by genetic means. "Against the injections of the State Physicians," Russell argues in a passage which evokes the Savage's haranguing of the Delta workers, "the most eloquent socialist oratory would be powerless."<sup>18</sup>

*The Scientific Outlook* goes even beyond this in its suspicion of the promises of science, foreseeing as it does the elimination of "all that is tragic in human life" and the discovery of the chemical means to prevent man from ever being unhappy. Dangerous writers of the past, such as Shakespeare, would only be accessible to special students by government license. Along with the biochemical means of destiny control already broached in *Icarus*, there would also be a biochemical "mood control," which would supplement regular doses of Hollywood-like entertainment. In Russell's future, there would be no equality, but a strict intellectual hierarchy, with Negro laborers occupying the bottom rungs. On the higher levels especially, "all private sentiments would be viewed with suspicion"; and all nonreconditionable deviants would be consigned to the lethal chamber.<sup>19</sup>

The resemblances to *Brave New World* are striking, but they are perhaps less so if one grants that they are in nearly every case anticipated by *Crome Yellow*. Moreover *The Scientific Outlook* and *Brave New World*, one should remember, were published within a few months of each other, so that it seems unlikely that Huxley could have had sufficient time even to read it. And besides, the differences are just as striking as the resemblances. Russell's governing elite, with its Spartan stress on hardship and endurance—rolling in the snow, for example—is closer to an English public school or to Wells's *samurai* than to anything in *Brave New World*. The same is true of his view that the destructive urges of future man will be channelled into sadistic experiments of a quasi-religious nature which will claim their "holo-

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and *Essence*, are already broached in Haldane's *Possible Worlds* (New York: Harper, 1928), p. 286.

<sup>18</sup> Bertrand Russell, *Icarus* (London: Kegan Paul, 1924), p. 54.

<sup>19</sup> Bertrand Russell, *The Scientific Outlook* (Glencoe: The Free Press, 1931), pp. 214, 184, 195, 242, 248–49, 255.

causts of sacred victims.” Russell considers this cruelty a “ray of hope” since it is the weak spot which may cause the whole structure to collapse.<sup>20</sup> But in *Brave New World*, with its Violent Passion Surrogates, that eventuality does not even arise.

That Russell exercised some influence on Huxley’s novel seems likely, though it was probably more in conversation than through his writings.<sup>21</sup> However, Russell was by no means, as we have seen in the case of Haldane, above being influenced himself. For that matter, Scogan-Russell’s separation of his future state into the categories of men of reason, men of faith, and the herd, comes straight from Gustave LeBon’s widely read *The Crowd* (1895; English translation 1896); even the example of Luther as an archetypal man of faith is LeBon’s.<sup>22</sup>

Be this as it may, however, it is more important to ask why three highly gifted men came to share a preoccupation about the dangers of science at just this juncture than to try to allot just the right amount of credit where it is due. In a sense, the answer to this larger question is easy: it was because developments in science, especially in genetics and psychology, had reached a stage where this sort of response became possible. But while this is true, it is by no means the whole story. Without trying to tell that whole story—an utter impossibility in an essay of this scope—it needs to be said that *Brave New World*, along with Haldane and Russell’s books, are products of the resurgence of the materialist-idealist schism in the sciences (and in philosophy) at the opening of the century, a schism due chiefly to the general acceptance of Einstein’s theory of relativity. “Einstein has told us,” Haldane wrote in *Daedalus*, “that space, time, and matter are shadows of the fifth dimension, and the heavens have declared his glory. In consequence Kantian idealism will become the basal working hypothesis of the physicist and finally of all educated men, just as materialism did after Newton’s day.”<sup>23</sup> The same point is made at greater length in A. N. Whitehead’s extremely influential *Science in the Modern World* and in E. A. Burt’s *Metaphysical Foundations of Modern Science*, which for a time became a kind of handbook for Huxley.

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<sup>20</sup> *Ibid.*, p. 259.

<sup>21</sup> It is a pity that Huxley’s letters to Russell and Haldane are not included in the recent edition of his correspondence. Much light may be shed on the scientific background of his fiction when these finally become available.

<sup>22</sup> Gustave LeBon, *The Crowd* (London: Fisher Unwin, 1896), pp. 118–20.

<sup>23</sup> J. B. S. Haldane, *Daedalus*, p. 14.

By the teens and twenties the controversy began to spill over into biology and psychology, in part because of the growing impact of Bergsonian philosophy. Again the age-old battle was joined: was man matter or was he idea, or was he a mixture of both? Outright or absolute idealists were rarities, but there were many modified idealists or “vitalists”—including Huxley, Haldane and Russell—and even more materialists or “mechanists.” (The vitalists were also sometimes called “finalists,” since they frequently posited a purpose for life. Some of the terminology and a good deal of the matter of this controversy go back at least as far as La Mettrie’s *L’Homme machine*.)<sup>24</sup>

In biology, the conflict was particularly acute in genetics, which seemed on the verge of explaining the origins of life and even beginning to think of creating it. It was this area which was the particular province of J. B. S. Haldane and Julian Huxley, both of whom adopted the vitalist position that life could not be explained by the mechanical analogy alone. In the opposing camp were figures like Lancelot Hogben, who argued in *The Nature of Living Matter* (1930) that such progress as had been made in genetics hitherto “has at every stage involved the elimination of holistic concepts by the ruthless application of mechanistic logic.”<sup>25</sup>

The real battleground, however, and the one which received most public attention, was psychology. The recent experiments by Pavlov on the conditioned reflexes of dogs suggested that so-called voluntary behavior was—or at least could be made into—merely another form of conditioned behavior. As Hogben observed, this new school of psychologists followed “the express object of making psychology a physical science, relieving man, the celestial pilgrim, of the burden of his soul.”<sup>26</sup> Pavlov’s American disciple, J. B. Watson, carried this method of research over into the study of man. “Give me a dozen healthy infants, well-formed,” he proclaimed in *Behaviorism* (1919), “and my own specified world to bring them up in and I’ll guarantee to take

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<sup>24</sup> Useful for further background are J. S. Haldane, *Mechanism, Life and Personality* (London: J. Murray, 1913); J. J. von Uexkuell, *Theoretische Biologie* (Berlin: J. Springer, 1920); and Joseph Needham, *Man a Machine* (London: Kegan Paul, 1927). Under the guise of the mind-body problem, the controversy has continued to the present day; see, for example, John Beloff’s “The Mind-Body Problem As It Now Stands,” *Virginia Quarterly Review*, 49 (Spring 1973), 251–64.

<sup>25</sup> Lancelot Hogben, *The Nature of Living Matter* (New York: Knopf, 1931), p. 79.

<sup>26</sup> *Ibid.*, p. 90.

any one at random and train him to become any type of specialist I might select—doctor, lawyer, artist, merchant-chief and, yes, even beggar-man and thief, regardless of his talents, penchants, tendencies, abilities, vocations, and race of his ancestors.”<sup>27</sup>

In a later and even more polemical contribution to *The Battle of Behaviorism* (1928), Watson attacked the vitalistic point of view by name. “*The behaviorist finds no scientific evidence,*” he wrote in emphatic italics, “*for the existence of any vitalistic principle, such, for example, as Mr. McDougall’s ‘purpose’.* . . . We need nothing to explain behavior but the ordinary laws of physics and chemistry.”<sup>28</sup> William McDougall, Watson’s opponent and the other contributor to the *Battle*, is one of the few modern psychologists whom Huxley consistently mentions with favor in his letters and elsewhere.

For Huxley, the mechanists and Watson in particular were bug-bears. As Huxley’s friend, J. W. N. Sullivan remarked in *Gallio*, “the only possible answer” to the Behaviorists “is a satire, as when Voltaire answered the theory that in this world everything is for the best in the best of all possible worlds by writing *Candide*.” *Brave New World* is a modernized *Candide*, an attempt (to use Orwell’s memorable words) to demolish the robot utopia of Wellsian “little fat men.”<sup>29</sup> The opening scene of chapter two, in which a group of infants is conditioned by means of sirens and alarm bells (plus a mild electric shock), is closely modelled on one of Watson’s best-known neo-Pavlovian experiments.<sup>30</sup>

The choice of the surname Watson for one of the more important characters of the novel again indicates the relation between mechanism and the new world. For that matter, the names Foster, Bernard, and Helmholtz, which also feature prominently in the novel, allude to three of the greatest physiologists of the nineteenth century: Sir Michael Foster (1836–1907), a former assistant of T. H. Huxley’s who succeeded him at the Royal Institution and who wrote, among other well-known biological works, *The Elements of Embryology* (1874); Claude Bernard (1813–1878), the greatest of French physiologists,

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<sup>27</sup> John B. Watson, *Behaviorism*, 2nd ed. (London: Kegan Paul, 1931), p. 104.

<sup>28</sup> John B. Watson, and W. McDougall, *The Battle of Behaviorism* (London: Kegan Paul, 1928), pp. 26–27.

<sup>29</sup> J. W. N. Sullivan, *Gallio or the Tyranny of Science* (London: Kegan Paul, 1927), pp. 58–59; and Orwell, *Road*, p. 192.

<sup>30</sup> See also *The Limitations of Science* (London, 1933), p. 176, by Huxley’s friend J. W. N. Sullivan for confirmation of this.

credited with first putting medicine on a scientific footing; and Hermann von Helmholtz (1821–1894), the German physiologist who is, oddly enough, best known as the formulator of the law of the conservation of energy. In the new world, genetics and psychology are intimately linked, housed as they are together in the District Hatchery and Conditioning Centers. Mechanistic physiology and mechanistic psychology, not surprisingly, produce mechanical man.

What does seem surprising, however, is the introduction into this context of Freudian psychology. Our Freud, as the World Controller remarks, is the name which Our Ford for some inscrutable reason used when he spoke out on psychological matters. As Huxley knew very well, mechanistic psychologists like Watson were adamantly opposed to Freud; for them, consciousness was the last refuge of the soul. But why then bring in Freud? (There is a related contradiction in the juxtaposition of names like Ford and Marx or Lenin and Trotsky in the new world, a contradiction I hope to elucidate in another essay.) One answer might be that Huxley despised the Freudians as much as he did the Behaviorists, which is probably true but still does not explain how the differences between these two schools are reconciled in the new world. Since Our Freud does not really speak out much—certainly a great deal less than Our Ford—his function may either be purely decorative (a contemporary allusion which even the dullest of Huxley's readers would be sure to grasp) or else, as Philip Thody argues, to symbolize the attitude that any kind of repression of one's impulses, especially sexual ones, is wrong.<sup>31</sup> Thody's explanation is, I think, correct as far as it goes. He overlooks, however, the related point that Huxley is seeking to make through Freud, namely to trace the consequences (as Huxley wrote to his father, of all people) "of the abolition of the family and all the Freudian 'complexes' for which family relationships are responsible."<sup>32</sup> It is Freud, not Watson, who is ultimately responsible for the Hatchery and Conditioning Center. Freud provides the rationale, the Behaviorists only the staff. He is the closest the new world's science comes to having a conscience.

The relevant texts belong to Freud's late period, notably *The Future of an Illusion* (1927; English translation, 1928) and *Civilization and Its Discontents* (1930, German and English). Both of these essays relate in significant ways to the mechanist-vitalist controversy and to *Brave New World*. "One would think," Freud writes in the

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<sup>31</sup> Thody, p. 55.

<sup>32</sup> Aldous Huxley, *Letters*, ed. Grover Smith (London: Chatto & Windus, 1969), p. 351.

opening pages of the earlier essay, “that a re-ordering of human relationships should be possible, which would remove the sources of dissatisfaction with civilization by renouncing coercion and the suppression of the instincts, so that, undisturbed by internal discord, men might devote themselves to the acquisition of wealth and its enjoyment. That would be the golden age, but it is questionable if such a state of affairs can be realized.” Questionable? In *Brave New World* there is no more question about it; here we have the conflictless, nonsuppressive consumer society in full flower. Furthermore, the atheistic Freud goes on to argue, the great mistakes in modern education are “the retardation of sexual development and premature religious influence,” mistakes for which the only real cure is large doses of scientific knowledge. The religious illusion has no future, but as for science, “no, our science is no illusion.”<sup>33</sup> To it therefore belongs the future.

*Civilization and Its Discontents* consists largely of a more extensive re-examination of the same issues. Here again God and finalism are dispatched in short order. For Freud “the idea of life having a purpose stands and falls with the religious system,” and since the latter falls, so does the former. Freud therefore concerns himself with the “less ambitious question of what men themselves show by their behavior to be the purpose and intention of their lives.” The answer to this is immediately apparent: “they strive after happiness; they want to become happy and remain so.” But achieving positive happiness seems impossible in the universe as presently arranged; the best man can hope for is to avoid unhappiness. Of the various means of realizing this end, “the most interesting . . . are those which seek to influence our own organism [i.e., by chemical means]. In the last analysis, all suffering is nothing else than sensation; it only exists insofar as we feel it, and we only feel it in consequence of certain ways in which our organism is regulated.”<sup>34</sup>

Here Freud comes very close to the mechanist position of someone like Watson and even closer to the position of Mustapha Mond in *Brave New World*. Mond also rejects the notion that life might have a meaning beyond itself. The paper on “A New Theory of Biology” which he reads and admires must be rejected because of its vitalist assumptions. Serious science, like serious art, as he later points out to the Savage and his friends, is incompatible with happiness and must therefore be kept within limits prescribed by a “cookery book, with

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<sup>33</sup> Sigmund Freud, *Works*, XXI, trans. James Strachey (London: Hogarth, 1961), pp. 7, 47–48, 56.

<sup>34</sup> *Ibid.*, pp. 76–78.

an orthodox theory of cooking which nobody's allowed to question" (p. 185). This cookbook produces food for the belly but not for the mind—technology, not science. In the ensuing theological discussion, during which Mond reads to the Savage excerpts from Newman and Maine de Biran, the same point is made again: "God isn't compatible with machinery and scientific medicine and universal happiness. You must make your choice. Our civilisation has chosen machinery and medicine and happiness" (p. 192). In this retelling of Dostoevsky's parable, the Grand Inquisitor is a mechanist and Christ a vitalist.

Freud, to be sure, is aware that civilization as we know it in the twentieth century rests on a foundation of discontent. That, as the title of his essay suggests, is the crux of the issue; whether the conflict between individual liberty and corporate conformity can be resolved or whether civilization must always have its discontents. It is the sublimation of instinct rather than its satisfaction that makes for cultural development; it is restraint that "makes it possible for higher psychical activities, scientific, artistic or ideological, to play such an important part in civilized life."<sup>35</sup> In the Fordian society, the individual is no longer free to endanger himself or his group by refusing to indulge his impulses. Resistance on the part of a few individuals of this first Fordian commandment is, in fact, what makes up the plot of *Brave New World* insofar as it has a plot. Most obviously, the Savage exercises self-restraint; he realizes that without restraint there is lust but never love; hence his apparently absurd behavior towards Lenina. When he fails to restrain himself, as in the orgy at the end of the novel, he ceases to be "civilized" (on his own terms), and therefore kills himself.

The Savage's fate is probably to be read as the inevitable consequence of behavior conditioned by a society quite as rigid as the Fordian one, only in a reverse direction. The same is, however, neither true of Bernard Marx nor Helmholtz Watson, the two other nonconformists. Bernard's experience parallels that of the Savage, though without any of the Savage's intensity of feeling. He shocks the pneumatic Lenina by regretting the speed with which they went to bed for the first time. "He began to talk a lot of incomprehensible and dangerous nonsense. Lenina did her best to stop the ears of her mind; but every now and then a phrase would insist on becoming audible. ' . . . to try the effect of arresting my impulses,' she heard him say . . . 'I want to know what passion is . . . I want to feel something strongly,'" (p. 77). So too with Helmholtz Watson, who abandons his women and

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<sup>35</sup> *Ibid.*, p. 96.

his committees for the sake of examining the effects of abstinence. "A physical shortcoming could produce a kind of mental excess. The process, it seemed, was reversible. Mental excess could produce, for its own purposes, the voluntary blindness and deafness of deliberate solitude, the artificial impotence of asceticism" (p. 57). It is this process which also leads to his shockingly anti-social poem about solitude and to his eventual voluntary exile to the Falkland Islands.

Paradoxically, Marx and Watson have strictly adhered to Freud's precept to supersede "infantilism," though Freud intended his injunction to be interpreted rather differently in *The Future of an Illusion*.<sup>36</sup> Both have deliberately attempted to set up obstacles for themselves which will impede the easy realization of their desires. In doing so, they have also demonstrated Huxley's dictum that what he called moral flat racing, the characteristically modern morality, is boring. "No reasonable hedonist," Huxley wrote in "Obstacle Race" (1931), "can consent to be a flat racer. Abolishing obstacles, he abolishes half his pleasures. And at the same time he abolishes most of his dignity as a human being. For the dignity of man consists precisely in his ability to restrain himself from dashing away along the flat, in his capacity to raise obstacles in his own path."<sup>37</sup> A "genuinely scientific future state" would therefore, in Huxley's view, devise unnatural obstacles to heighten pleasure and to create at least a semblance of human dignity. The Fordian state is in this sense not genuinely scientific, for it has no real conscience. It can tolerate sensation but never feeling, and "feeling lurks in that interval of time between desire and its consummation."<sup>35</sup> In Ford's world the race must be unutterably flat, it must never end, it must lead nowhere, and it must be closed to all drivers above an emotional age of five.

"Whether we like it or not," Aldous Huxley remarked in *Literature and Science*, his last completed work, "Ours is the Age of Science."<sup>38</sup> Whether we like it or not, and Huxley had come to like it less and less as the Age of Science revealed itself more and more, in gas chambers and in atom bombs and in the abrogation of individual liberty. He denounced our Age for worshipping the golden calf of mass production and for imposing as the whole truth the most systematic body of half-truths ever assembled. Something needed to be done, it was clear.

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<sup>36</sup> *Ibid.*, p. 49.

<sup>37</sup> Aldous Huxley, "Obstacle Race," *The Adelphi* (April 1931), p. 40.

<sup>38</sup> Aldous Huxley, *Literature and Science* (London: Chatto & Windus, 1963), p. 60.



“What can a writer do about it?” he asked. “And what, as a conscientious literary artist and a responsible citizen, ought he to do about it?”<sup>39</sup> His duty, the answer came, was to render as truthfully and perfectly as he could those private and individual worlds—quite as real as the public ones—which were forever closed off to science; to make the best of the world as it is; to give form to everyday life; to allow us to know who we are. Bad art, Huxley warned, was just as dangerous as bad religion or bad philosophy; it was a crime against society.

Has *Brave New World*, judged by these criteria, done its duty? No, one must perhaps a little surprisingly admit, it has not. There are practically no individuals in the novel; there is little life as we know it; and there is almost no opportunity to come to a knowledge of ourselves. Should we conclude, then, that Huxley has failed? No, quite as certainly not, for precisely the reason that he has not shown us ourselves—but only the selves which we have not yet come to be. For with a power seldom equalled in the literature of the Age of Science, Huxley has exhorted us to make the humanly best of what we still have and are—a society of disparate, dissident, and unhappy individuals—lest we be overtaken by a future in which responsible citizens and artists (and we) no longer exist.

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<sup>39</sup> *Ibid.*